

AMENDMENTS TO THE CLAIMS

Please amend the claims without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents, as follows.

In the Claims:

1. (Currently Amended) A semiconductor device having a multilayer structure, comprising:
at least two wiring layers, each formed in a wiring groove formed in a corresponding insulating film; and
a via contact embedded in a via hole formed in an insulating film formed between the at least two layers and made of a metal wiring material which is the same as that of the at least two wiring layers,
wherein the metal wiring material of the via contact contains an additive which is not contained in the metal wiring materials of the at least two wiring layers.
2. (Previously Presented) The semiconductor device according to claim 1, wherein the metal wiring material is Cu and the additive is Sn, Rh, Zn, Al, Ru, Cr, Pd, In, Mg, Co, Zr, Ti, Ag, Ir, Ni, Ge, Nb, B, or Hf.
3. (Previously Presented) The semiconductor device according to claim 1, wherein the metal wiring material is Al and the additive is Cu or Si.
4. (Previously Presented) The semiconductor device according to claim 1, wherein the metal wiring material is Ag and the additive is Cu.
5. (Currently Amended) A semiconductor device having a multilayer structure, comprising:
at least two wiring layers, each formed in a wiring groove formed in a corresponding insulating film; and
a via contact embedded in a via hole formed in an insulating film formed between the at least two layers and made of a metal wiring material which is the same as that of the at least two wiring layers,

wherein metal wiring materials of the at least two wiring layers contain at least one additive, and

a metal wiring material of the via contact contains at least two additives which include an additive which is the same as that contained in the metal wiring materials of the at least two wiring layers and an additive which is not contained in the metal wiring materials of the at least two wiring layers.

6. (Previously Presented) The semiconductor device according to claim 5, wherein the metal wiring material is Cu and the at least one additive is Sn, Rh, Zn, Al, Ru, Cr, Pd, In, Mg, Co, Zr, Ti, Ag, Ir, Ni, Ge, Nb, B, or Hf.

7. (Previously Presented) A semiconductor device having a multilayer structure, comprising:

at least two wiring layers; and

a via contact formed between the at least two layers and made of a metal wiring material which is the same as that of the at least two wiring layers,

wherein metal wiring materials of the at least two wiring layers and a metal wiring material of the via contact contain the same additive, and

a concentration of the same additive in metal wiring material of the via contact is higher than that of the same additive in the metal wiring materials of the at least two wiring layers.

8. (Previously Presented) The semiconductor device according to claim 7, wherein the metal wiring material is Cu and the at least one additive is Sn, Rh, Zn, Al, Ru, Cr, Pd, In, Mg, Co, Zr, Ti, Ag, Ir, Ni, Ge, Nb, B, or Hf.

9. (Previously Presented) A semiconductor device having a multilayer structure, comprising:

at least two wiring layers; and

a via contact formed between the at least two layers and made of a metal wiring material which is the same as that of the at least two wiring layers,

wherein metal wiring materials of the at least two wiring layers contain at least one additive, and a metal wiring material of the via contact contains at least two additives which include an additive which is the same as that contained in the metal wiring materials of the at least two wiring layers, and

a concentration of the at least one additive commonly contained in the metal wiring materials of the at least two wiring layers and the metal wiring material of the via contact is higher in the metal wiring material of the via contact than in the metal wiring materials of the at least two wiring layers.

10. (Previously Presented) The semiconductor device according to claim 9, wherein the metal wiring material is Cu and the at least one additive commonly contained is Sn, Rh, Zn, Al, Ru, Cr, Pd, In, Mg, Co, Zr, Ti, Ag, Ir, Ni, Ge, Nb, B, or Hf.

11. (Previously Presented) A semiconductor device comprising:

a first metal wiring layer made of a first wiring material, formed in a first wiring groove formed in a first insulating film on a semiconductor substrate;

a second insulating film on the first insulating film having the first wiring layer embedded therein;

a via contact embedded in a via hole formed in the second insulating film, the via contact being made of the same wiring material as the first wiring material, which contain an additive which is not contained in the first wiring material of the first wiring layer;

a third insulating film on the second insulating film having the via contact formed therein; and

a second metal wiring layer embedded in a second wiring groove formed in the third insulating film, the second metal wiring layer being made of the same metal wiring material as the metal wiring material of the first metal wiring layer.

12. (Previously Presented) The semiconductor device according to claim 11, wherein the metal wiring material is Cu and the additive contained in the metal wiring material is Sn, Rh, Zn, Al, Ru, Cr, Pd, In, Mg, Co, Zr, Ti, Ag, Ir, Ni, Ge, Nb, B, or Hf.

13. (Previously Presented) A semiconductor device comprising:

a first metal wiring layer made of a first wiring material added with an additive, formed in a first wiring groove formed in a first insulating film on a semiconductor substrate;

a second insulating film on the first insulating film having the first wiring layer embedded therein;

a via contact embedded in a via hole formed in the second insulating film, the via contact being made of the first wiring material which contains the additive;

a third insulating film on the second insulating film having the via contact formed therein; and

a second metal wiring layer embedded in a second wiring groove formed in the third insulating film, the second metal wiring layer being made of the metal wiring material which contains the additive,

wherein a concentration of the additive in the metal wiring material of the via contact is higher than that of the additive in the metal wiring materials of the first metal wiring layer and the second metal wiring layer.

14. (Previously Presented) The semiconductor device according to claim 13, wherein the metal wiring material is Cu and the additive is Sn, Rh, Zn, Al, Ru, Cr, Pd, In, Mg, Co, Zr, Ti, Ag, Ir, Ni, Ge, Nb, B, or Hf.

15-19 (Cancelled)